CLAIMS

1. A threadless knock sensor, comprising:

a sleeve;

a transducer disposed around the sleeve;

a load washer disposed around the sleeve adjacent to the transducer;

a frusto-conical disk spring disposed around the sleeve adjacent to the load washer; and

a threadless means for compressing the disk spring against the load washer.

2. The knock sensor of Claim 1, wherein the threadless means comprises:

a flared end formed by the sleeve above the load washer, the disk spring being installed in compression between the flared end of the sleeve and the load washer.

3. The knock sensor of Claim 1, wherein the threadless means comprises:

a spring retention collar press fitted around the sleeve above the load washer, the disk spring being installed in compression between the spring retention collar and the load washer.

4. The knock sensor of Claim 1, further comprising:

a lower terminal disposed around the sleeve beneath the transducer; and

an upper terminal disposed around the sleeve above the transducer.

5. The knock sensor of Claim 4, further comprising:

a lower insulator disposed around the sleeve beneath the lower terminal; and

an upper insulator disposed around the sleeve above the upper terminal.

6. The knock sensor of Claim 5, further comprising:

a housing surrounding the sleeve, the transducer, the terminals, the insulators, and the disk spring.

7. The knock sensor of Claim 6, wherein the housing is molded from plastic.

8. The knock sensor of Claim 7, wherein the disk spring is formed with holes to allow molten plastic to flow therethrough.

9. The knock sensor of Claim 2, wherein the disk spring defines an inner periphery formed with at least one slit therethrough.

10. The knock sensor of Claim 9, wherein the slit is angled with respect to vertical.

11. An engine control system, comprising:

at least one microprocessor;

at least one ignition system electrically connected to the microprocessor; and

at least one threadless knock sensor electrically connected to the microprocessor.

12. The system of Claim 11, wherein the threadless knock sensor comprises:

a sleeve;

a transducer disposed around the sleeve;

a load washer disposed around the sleeve adjacent to the transducer;

a frusto-conical disk spring disposed around the sleeve adjacent to the load washer; and

a threadless means for compressing the disk spring against the load washer.

13. The system of Claim 12, wherein the threadless means comprises:

a flared end formed by the sleeve above the load washer, the disk spring being installed in compression between the flared end of the sleeve and the load washer.

14. The system of Claim 12, wherein the threadless means comprises:

a spring retention collar press fitted around the sleeve above the load washer, the disk spring being installed in compression between the spring retention collar and the load washer.

15. The system of Claim 12, wherein the threadless knock sensor further comprises:

a lower terminal disposed around the sleeve beneath the transducer; and

an upper terminal disposed around the sleeve above the transducer.

16. The system of Claim 15, wherein the threadless knock sensor further comprises:

a lower insulator disposed around the sleeve beneath the lower terminal; and

an upper insulator disposed around the sleeve above the upper terminal.

17. The system of Claim 16, wherein the threadless knock sensor further comprises:

a housing surrounding the sleeve, the transducer, the terminals, the insulators, and the disk spring.

18. The system of Claim 17, wherein the housing is molded from plastic.

19. The system of Claim 18, the disk spring is formed with holes to allow molten plastic to flow therethrough.

20. The system of Claim 13, wherein the disk spring defines an inner periphery formed with at least one slit therethrough.

21. The system of Claim 20, wherein the slit is angled with respect to vertical.

22. A method for making an engine knock sensor, comprising the acts of:

providing a sleeve having a flared end, the flared end defining a first spring retention face;

disposing a transducer on the sleeve;

disposing a load washer on the sleeve above the transducer, the load washer forming a second spring retention face;

disposing a disk spring on the sleeve above the load washer, the disk spring contacting the second spring retention face; and

compressing the disk spring until it engages the first spring retention face.

23. The method of Claim 22, further comprising the act of:

molding a housing around the sleeve, transducer, the load washer, and the disk spring.

24. A method for making an engine knock sensor, comprising the acts of:

providing a sleeve, the sleeve forming a collar stop face;

disposing a transducer on the sleeve;

disposing a load washer on the sleeve above the transducer;

disposing a disk spring on the sleeve above the load washer; and

pressing a spring retention collar on the sleeve above the disk spring until the spring retention collar engages the collar stop face and the disk spring is compressed.

25. The method of Claim 24, further comprising the act of:

molding a housing around the sleeve, transducer, the load washer, and the disk spring.

26. An engine knock sensor, comprising:

a sleeve;

a transducer circumscribing the sleeve;

an upper threadless spring retention element;

a lower spring retention element; and

a spring held in compression between the retention elements to exert a load on the transducer.